

<i>Pseudohyalina minuscula</i> Binn.	<i>Lymnæa techella</i> Hald.
“ <i>singleyana</i> Pils.	<i>Planorbis trivolvus</i> Say
“ <i>nummus</i> Van.	“ <i>antrosus</i> Conr.
<i>Anguispira alternata rarinotata</i>	“ <i>liebmanni</i> Dkr.
Pils.	“ <i>parvus</i> Say
<i>Helicodisus eigenmanni</i> Pils.	“ <i>dilatatus</i> Gld.
<i>Punctum pygmaeum</i> Drap.	“ <i>cultratus</i> Orb.
<i>Succinea avara</i> Say	<i>Planorbula obstructa</i> Morel.
<i>Carychium exiguum</i> Say	<i>Cincinnatiatia cincinnatiensis</i>
<i>Carychium exile</i> Lea	Anth.
<i>Physa integra</i> Hald.	<i>Musculium transversum</i> Say.

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AN INTERESTING RADULA (*EOCYPRAEA ADAMSONII* SOW.)

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In 1924<sup>1</sup> I established a new sub-family Eocypræinæ, intermediate between Cypræinæ and Amphiperasinæ; its characters were taken from the shells, especially from those of the fossil species. Now I have information also of the radula of *Eocypræa adamsonii* Sow., the only recent survival of this genus, which is otherwise represented by numerous species inhabiting all seas, especially from Upper Cretaceous to Eocene times.

Its radula justifies the new sub-family Eocypræinæ. The median tooth is like in many Amphiperasinæ (*Simnia purpurea* Risso, for instance), but all cuspides are much longer. The admedian tooth shows the same external prolongation as *Simnia purpurea* Risso, and *Amphiperas adriatica* Sow., but the flabellum of its body is very peculiar. The uncini are quite distinct: inner one recalls *Pedicularia*, being elongate, with 3 cusps, while the outer one is flabelliform, but much narrower than in Amphiperasinæ. I counted about 350 rows of teeth, while there are in Triviinæ 40–70, in *Pedicularia* 75, in Cypræinæ 65–230, in Amphiperasinæ 70–150, and in the large *Amphiperas ovum* Linn. only, 240–300.

<sup>1</sup> Archiv für Naturgeschichte, xc, pp. 182, 205 (1924).

According to Prof. Thiele (Berlin), the radula of *Jenneria pustulata* Lam. is similar to that of *Eocypræa adamsonii*; also I have been told *Sulcocypræa*<sup>1</sup> *concinna* Ad. Rv., is allied to *Eocypræinæ*. The other genera, however, formerly included in *Eocypræinæ* do not belong to this group (excepted *Transolula*); *Calpurnus* is an aberrant form of *Amphiperasinæ*, *Cypræogemula* seems to be allied to *Pedicularia*; the anatomy of *Umbilia hesitata* Ired.<sup>2</sup> proves that this genus (and *Gisortia*), though

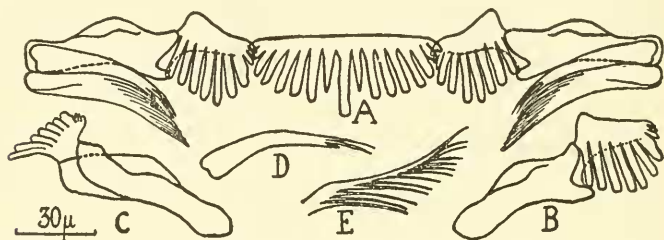


FIG. 1. A, one row of the lingual teeth of *Eocypræa adamsonii* Sow. B, one admedian tooth (left side), dorsal view. C, one admedian tooth (left side), basal view from behind. D, one inner tooth (left side), dorsal view. E, flabellum of the outer uncinal tooth, unfolded (left side), basal view.

very primitive (the third branch of the osphradium still being short!), belongs to *Cypræinæ*. *Mandolina* and its predecessor *Archicypræa* (new, type: *lioyi* Bay.) form an ancient branch intermediate between *Cypræinæ* and *Eocypræinæ*. The systematic position of *Cypræovula* can not yet be determined certainly: the shells of the 6 species restricted to South Africa look very ancient (they seem to be most nearly allied to shells from the Eocene of Australia: *Austrocypræa pyrulata* Tate); I have not yet succeeded in getting a radula, all specimens of the common species (*capensis* Gray, *edentula* Gray) being beach shells.

<sup>1</sup>There is no difference between the shells of "*Orulum concinnum*" Ad. Rv., from the Indopacific Ocean and the Eocene species of *Sulcocypræa* Conr., viz.: *mathewsonii* Gabb, *lintea* Conr. (= *kennedyi* Harr.), *vaughani* Johns., and *healeyi* Aldr. (= *dalli* Aldr.). *Sulcocypræa* must not be confounded with *Cyprodia* Swains., which belongs to *Triviinæ*.

<sup>2</sup>Vayssièrè, *Récherches zool. et anat. Moll. Cypræidés I.* (Ann. Mus. Hist. Nat. Marseille, Zool., xviii), p. 80, t. 2, figs. 23-26 (1923).